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**Article**

## Life course explanations of consumer responses to threats: the case of COVID-19

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## MARKETING | RESEARCH ARTICLE

# Life course explanations of consumer responses to threats: the case of COVID-19

Sarinya L. Suttharattanagul<sup>1\*</sup>, Yuanfeng Cai<sup>2</sup> and George P. Moschis<sup>3</sup>

**Abstract:** Marketing managers and researchers have had a long-standing interest in understanding the onset of new patterns of consumer behavior, but they have had few theoretical and methodological tools for studying the onset and stability of

### ABOUT THE AUTHORS

Sarinya L. Suttharattanagul is currently a full-time lecturer at Bangkok University, Thailand. She is passionate in consumer behaviour with extensive experience in research and consultation both in business and academic. She received her Ph.D. in consumer study focusing on retail business and has experience in consumer research for more than 10 years with well-known organizations. Her experiences are in retail business and FMCGs focuses for sales tracking, panel data, and customized research from understanding customer needs to segmentation and utilization of data for strategy and implementation purposes.

Yuanfeng Cai is currently a full-time lecturer of Graduate School at Stamford International University in Bangkok, Thailand. She earned her Ph.D. in Marketing from College of Management, Mahidol University, Thailand. After that, she received post-doctoral training in marketing at Xiamen University, China. Her articles have appeared in international journals and conferences, such as *Australasian Marketing Journal*, *International Journal of Retail & Distribution Management* and *Journal of Marketing Channel*, Australian & New Zealand Marketing Academy Conference, and American Marketing Association Conference, to name a few.

George P. Moschis is Professor of Marketing Emeritus and the founding director of the Center for Mature Consumer Studies (CMCS) at Georgia State University. He is presently an adjunct professor of management at Mahidol University, Thailand, where he has founded and directed the Consumer Life-course Studies Group (CLSG), a world-wide network of academic researchers. Dr Moschis' research is globally known to academics and industry; and during his directorship CMCS was frequently recognized by American Demographics as one of the best sources of marketing information in the United States. His publications include hundreds of peer-reviewed articles, research monographs, and 10 books. He has been cited as one of the most influential figures in consumer research today.

### PUBLIC INTEREST STATEMENT

Consumption patterns of consumers are dynamic in response to changing environments. In spite of this, researchers know little about how this change takes place during a person's lifetime. As a result, we applied a recently developed multi-perspective method to understand how new consumption behavior develops and how old consumption behavior endures during early COVID-19 pandemic phases in Thailand. Our findings reveal that, as a result of the pandemic's stressful nature, Thai consumers' existing consumption patterns changed during its early phase, but new ones did not emerge. Acute stress generated by the pandemic can lead to several behavioral and psychological consequences, such as increase in hoarding, food delivery, media usage, anxiety, and chronic stress. The needs for changes in consumer behavior provide opportunities for marketers to satisfy the newly formed consumer needs and adjust their current marketing strategies to suit new consumption norms during and after the threatening event.

consumption patterns over the course of a person's life. The recently-developed multi-theoretical life course paradigm (LCP) has been increasingly used widely across disciplines to study change and continuity in behavior; it can be employed to help understand the onset of new patterns of consumer behavior. This article presents the conceptual life course model as a research framework based on the LCP for studying the development of new shopping and consumption patterns and shows how this framework could provide new insights that help better understand existing views on the development and change of consumer habits. Based on the LCP's multi-theoretical perspectives and previous research, the article develops hypotheses derived from the course model to help explain the onset and changes in consumption habits following the COVID-19 outbreak; and it uses an online sample of Thai consumers to test them. The results offer insights into change mechanisms that serve as bases for consumer behavior modification, and suggest implications for public policy, marketing practice, theory and further research.

**Subjects:** Marketing Research; Marketing Management; Retail Marketing

**Keywords:** COVID-19; life course paradigm; shopping patterns; Thailand

## 1. Introduction

The coronavirus pandemic (COVID-19) has caused unprecedented changes in consumption patterns of the world's population. To prevent the spread of this virus, most countries have experienced lockdowns, and people have been asked to practice social distancing, work and stay at home. Consequently, in the early stage of the pandemic outbreak, unusual demand for products or panic buying, such as hoarding toilet paper, hand sanitizers, surgical masks and basic foods, was reported all over the world (Wang et al., 2020). As the lockdowns continue, consumers' access to physical retail and recreational facilities has decreased considerably in order to avoid human contact. Alternatively, demand for online shopping, home delivery, online communication, and online education has increased dramatically as coping solutions (Fabius et al., 2020; Krishnamurthy, 2020; Pantano et al., 2020). The sudden change of consumer demand has left very little time for retailers and suppliers to adjust, and thus, provided immediate and far-reaching challenges to businesses, such as inventory shortages, supply chain breakdowns, product delivery problems, and significant losses in revenues and customers (Hartmann & Lussier, 2020; Ivanov, 2020). Many of these changes in consumption and business experiences continue to persist, as the pandemic is far from over.

Previous research reveals that pandemics have become more common, and we are very likely to see another epidemic in our lifetime (Donthu & Gustafsson, 2020). Moreover, the research indicates that consumers may change their shopping habits not only during a pandemic but also years after a natural disaster (Kennett-Hensel et al., 2012; Pantano et al., 2020). Therefore, understanding of how consumers change their behaviors due to pandemics is of particular importance to help retailers and marketers adapt to such changes and develop sustainable business practices (Campbell et al., 2020).

The existing literature reveals that empirical research on the impact of pandemics, like COVID-19, on consumer behavior has been very limited (Kim, 2020; Laato et al., 2020). Despite a handful of studies that examine panic buying as an expected response to pandemic (e.g., Addo et al., 2020; Clemens et al., 2020; Laato et al., 2020; Prentice et al., 2020), little is known about the manner in which the COVID-19 pandemic influences consumers' general consumption patterns (Campbell et al., 2020). Some researchers suggest that the COVID-19 pandemic can be viewed as a collective traumatic event experienced by consumers (He & Harris, 2020). Others focus on the effects of

stressful events that trigger changes in consumption habits, such as increase in risk-averse consumption, as strategies to cope with stress (Fortin et al., 2011; Rakrachakarn & Kohlbacher, 2020). Campbell and associates (Campbell et al., 2020) view the COVID-19 pandemic, as well as threat-inducing events in general, as disruptions in people's lives, forcing them to change their consumption habits in order to adapt to new life conditions.

The present research employs the life course paradigm (LCP) as an over-arching multi-theoretical research framework within which the various perspectives can be integrated to study the effects of a pandemic on consumer behavior. Specifically, this article first presents the LCP conceptual framework to inform the reader on its elements and assumption. Second, it shows how previous perspectives advanced by other researchers can be integrated within the LCP to provide rich insights into consumer behavior; it offers alternative theoretical explanations of relationships, providing bases for the hypothesized relationships of the present study. Third, a sample of Thai consumers is used to test hypothesized relationships among model variables to help understand changes in consumer behavior during the early stage of the outbreak. Finally, the article discusses implications of the findings for theory, practice, and further research using the LCP.

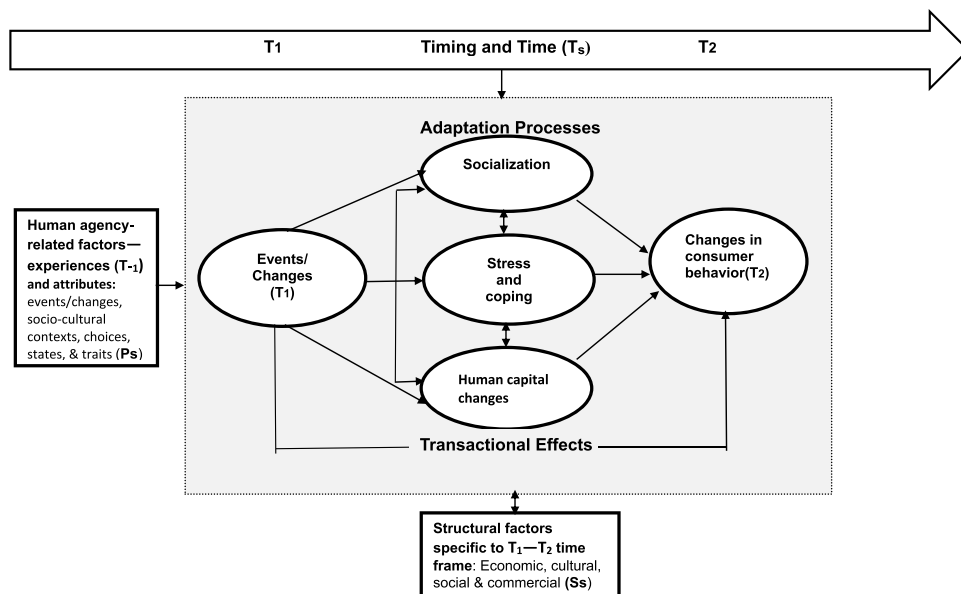
## 2. Background

### 2.1. The life course paradigm

The LCP, which has been called, "one of the most important achievements in social science in the second half of the 20<sup>th</sup> century" (Colby, 1998, p. x), has grown in popularity in recent decades as a multi-theoretical research framework that spans conceptual and theoretical boundaries of behavioral and social sciences (e.g., Billari, 2009; Elder, 1998; Elder et al., 1996; Moschis, 2019). It has been used as the basis for the model described herein and serves as an update and expansion of the original life course model (Moschis, 2007a) employed in a good number of life course studies in the field of consumer behavior around the world during the last two decades (for these studies, see, Moschis, 2019). The LCP has been suggested as a feasible approach to the study of disasters (DeWaard, 2016), and researchers in the consumer field have employed variables from this stream of research to analyze different disasters as stressful incidents, such as the 2011 triple disaster in Japan (Rakrachakarn & Kohlbacher, 2020) and Hurricane Katrina in 2005 (Kennett-Hensel et al., 2012; Sneath et al., 2009). In a similar vein, researchers have viewed COVID-19 as a severe threat, comparable to those of other disasters, because "it has caused much disruption, interrupting consumers' norms, beliefs, practices and routines" (Campbell et al., 2020, p. 4). Therefore, we offer the LCP as a suitable research framework for studying its effects on consumer behavior.

The life course conceptual model derived from the LCP can be seen graphically in Figure 1. It divides the variables that have been employed in different disciplines of life course studies into two large sets or categories of elements. The first category of elements includes three main kinds of variables that make up the life course model's main components. The first type of variables consists of changes or events that occur to people at a particular time point (T1) in their lives, both planned or expected (e.g., retirement) and unanticipated (e.g., onset of chronic disease). The second collection of variables is comprised of three interdependent adaptation processes caused by these events or changes: specific socialization processes (e.g., family communication styles); stress processes (both chronic and acute stress) and coping responses (primary and secondary); and cognitive changes (growth and decline) in human capital (mastery and knowledge). The third kind of variables consists of outcomes at a later point in time (T2) which include incidents, changes, or patterns of behaviors and thoughts. The outcomes (at T2) are also considered as events in the form of one's actions and decisions or shifts in patterns of thoughts and behaviors, such as changes in eating habits. Events (T1) and results (T2) can take the form of single decisions or sudden and incremental shifts in thoughts and behaviors. Many of the life events and methods of adaptation are intertwined since the occurrence of one increases or decreases the probability of the occurrence of the another.

**Figure 1. A conceptual life course model of consumer behavior source: adapted from . Moschis (2019)**



The second collection of elements is made up of three types of contextual variables that jointly describe the different situations that locate people in their various types of environments: (a) the events' timing with respect to the person's age or stage in life—i.e., age at which one experiences various events, and time or duration (length of time) of such experiences ( $T_s$ ); (b) variables related to human agency that consists of earlier-in-life experiences in the form of choices and socio-cultural contexts (at  $T-1$ ), as well as personal characteristics; and (c) various forms of micro- and macro-structural factors, both stable and fluid, relevant to a specific time frame ( $T1-T2$ ).

According to the LCP's main argument, consumer behavior patterns develop, stabilize, and adjust systematically in response to evolving life circumstances that are conceived as life events, such as choices people make, anticipated and unexpected biological, socio-psychological, and environmental changes. These events, all of which are viewed as stressful regardless of their desirability (Moschis, 2007b), necessitate adaptation to new life situations and influence thoughts and behaviors, while their absence appears to foster mental and behavioral stability (Elder & Johnson, 2001). Contextual variables, such as event timing and length of event experience ( $T_s$ ), the person's characteristics and earlier-in-life circumstances (at  $T-1$ ) ( $P_s$ ), and the structural contexts ( $S_s$ ) in which he or she is embedded during a given period of time (i.e., during  $T1-T2$ ), all affect how a person encounters, interprets, and reacts to these changes (events) at a given point in time ( $T1$ ) and adapts to them over time ( $T1-T2$ ). The role of contextual variables is underscored by the LCP's axioms (commonly known as "principles") (e.g., Elder et al., 2003). These axioms relate to (a) timing of an event, (b) the time and place of one's experiences, (c) the influence of others close to a person (exemplified in the principle of "linked lives"), (d) the agency's role in the construction of one's life course, and (e) a person's continuous development throughout life.

People are active constructors of their own life course by making choices and adapting to changes during their lives. They build their life patterns by making decisions (e.g., marriage, retirement), reacting to events encountered ( $T1$ ) on the basis of individual constraints (e.g., financial, biological) and structural factors (e.g., market conditions), and interacting with changing environments to produce behavioral, social, and market outcomes.

## 2.2. COVID-19 research in life-course context

In a recent review article on consumer life course research, Moschis (2021) makes a compelling argument for the value of LCP in studying specifically the COVID-19 outbreak. He shows how this pandemic event or disaster can be examined within the LCP, demonstrating how researchers could employ the recently-emerged life course approach to study the role of this significant life event in the development and change of patterns of consumer behavior; and he illustrates the application of the paradigm’s tenets and axioms in the specific context of COVID-19 outbreak to provide conceptual directions, some in the form of propositions, for future theory and research.

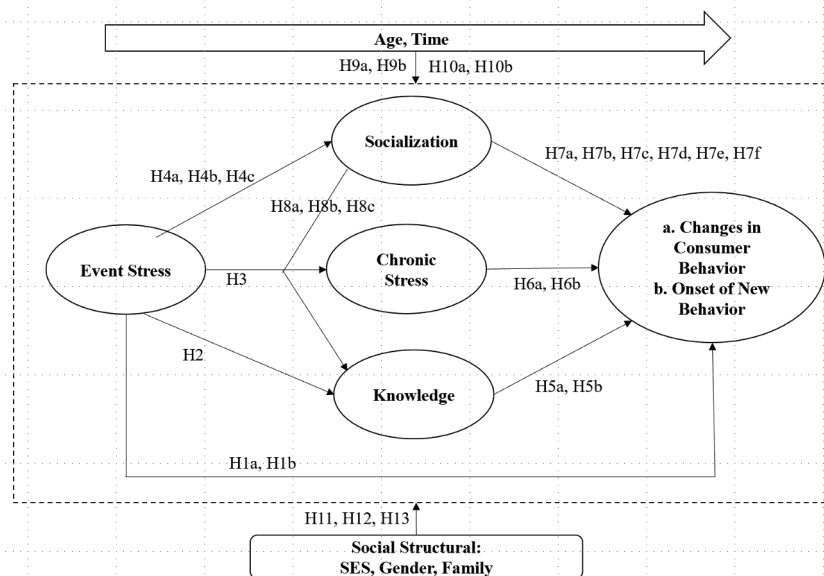
The present study follows the stream of life course research. The COVID-19 outbreak can be viewed as a pandemic event or disaster whose effects can be examined within the LCP (DeWaard, 2016). This section demonstrates how researchers could employ the LCP to study the role of this significant life event in the development and change of patterns of consumer behavior. The material presented in this section also provide the bases for hypothesis development presented in the next section.

### 2.2.1. Conceptual model development

Figure 2 presents an adaptation of the general life course conceptual model (Figure 1) applied to the specific situation of COVID-19 outbreak. It assumes that changes in consumer behaviors (viewed as events at  $T_2$ ) are due to direct and indirect effects of experienced stressful life event of the outbreak (at  $T_1$ ) and change processes (three types of mechanisms) since the outbreak (during the  $T_1$ — $T_2$  time frame). They are also the result of direct, indirect, and moderating effects of the contextual variables of timing (age at which a person experiences the pandemic) and duration (length of experiences in months), and relevant socio-structural factors (gender, socio-economic status, and family composition). The specific contextual variables are suggested by relevant life course research as it may apply to the pandemic; they are limited in number and are offered as an illustration of contextual effects.

The LCP, as exemplified in Figure 2, further suggests that levels of stability or change in consumer behavior are determined in part by the extent to which the COVID-19 outbreak sets in motion the three types of mechanisms that people employ in their efforts to cope with the new life conditions created by the pandemic. Furthermore, occurrences and changes that people encounter individually or collectively are interdependent, as the occurrence of one event increases or

**Figure 2. A life course model of COVID-19 effects.**





decreases the likelihood of other events happening; and thus, the level of acute stress experienced not only due to the outbreak itself but also because of other events related to the COVID-19 outbreak (e.g., job loss, income or asset contraction) likely determines the extent to which one will try to adapt to changes in life conditions created by the main event.

### 2.2.2. Model variables

Specifically, a person's experience of this outbreak, and its effects on other interdependent events (e.g., job loss, reduced income), are collectively viewed as *acute stressors*. They will determine the extent to which one will interact with formal and informal *socialization agents* (viewed as agents of change; e.g., Moschis, 1987): *formal agents* of change include mass media and government sources; *informal agents* include friends, co-workers, and family; and *social media* include Internet, Facebook, and Instagram.

Unexpected incidents, such as the COVID-19 outbreak, appear to be relatively brief; they can cause acute stress, which may intensify *chronic stress* that is the result ongoing life circumstances (e.g., caregiving, role overload) and necessitates coping (Moschis, 2007b). *Coping* may take several forms, including increase in the product and service use, such as tranquilizers and alcohol, as well as home entertainment or online services (e.g., Moschis, 2007b). People may also experience increase in *human capital*—i.e., gain knowledge about the pandemic experienced; such knowledge may involve learning how the virus is transmitted and how one can protect himself or herself.

The three mechanisms may lead to different outcomes of *consumer behaviors*, including changes in existing ones (increase or decrease) and the onset of new behaviors. People may be socialized differently from the past, for example, to new roles and lifestyles imposed by the pandemic event and may attempt to adhere to new imposed or socially accepted norms (e.g., working from home, social distancing). Coping responses that reduce stress can become reinforced and lead to permanent changes in behaviors. And theories on cognitive and personality development suggest that people may change their behaviors as a result of changes in human capital (Moschis, 2019). For example, they may learn more about virus and its transmission (increase in human capital) and participate in prophylactic practices that change their consumption habits, such as frequent disinfectant use and buying products online rather than at stores (Smith & Machova, 2021).

These views on how the pandemic may influence consumer behavior are also shared by Campbell and her colleagues (Campbell et al., 2020). Although they admit that their focus on change mechanisms is rather narrow, they highlight adaptation mechanisms of stress and coping, focusing almost exclusively on psychological theories (e.g., control theory); and they acknowledge that consumers "adaptive" responses may be in a variety of forms, many of which are viewed as coping responses within the life course model (Moschis, 2007b).

The LCP's axiomatic principles suggest that the probability of change in one's behavior (or the onset of a new behavior) in response to an event is dependent on *duration*, which refers to the passage of time within the risk period (Elder, 1998; Moschis, 2019). For example, the risk period for the onset of purchases of prophylactic products (e.g., face masks, disinfectants) due to COVID-19 began at the time of event occurrence or awareness of the outbreak. Once people enter the risk period, they are "at risk" of changing their behavior in response to the occurred event, with longer duration (time) increasing the likelihood of the onset of change in behavior.

As with all unexpected events, the *timing* of the COVID-19 outbreak has relevance to life course because of a lack of preparation for the event; it refers to the person's stage in life or age at which he or she experiences the outbreak. For expected or normative events (e.g., retirement, marriage, birth of first child), people have adequate time for preparation; and adaptation to a changing life condition can occur over a longer period of time. Therefore, the timing of an event is most important (e.g., most stressful, requiring greater need for adaptation) when the event is unexpected or "off time" (e.g., Elder,



1998; Moschis, 2019). And the pandemic is likely to have greater effects on people who have had relatively little experience in responding to such a threatful event.

Because the COVID-19 pandemic is an event never experienced in the past, the model (Figure 2) makes no predictions as to the role of specific agency-related variables in affecting variables and relationships inside the shaded area. However, previous reviews highlight the direct and indirect effects of select *socio-structural factors* that appear relevant to the present investigation. They include socioeconomic status (SES), gender, and family structure on people's response to life events, adaptation mechanisms, and outcomes in the form of consumer behaviors (e.g., Moschis, 2007b, 2019; Thoits, 1995).

### 3. Hypotheses

When the general life course conceptual model (Figure 1) is applied to the specific situation of COVID-19 outbreak, it is assumed that changes in consumer behaviors (viewed as events at  $T_2$ ) are the result of the direct and indirect effects of the experienced pandemic event (at  $T_1$ ) and change processes (three types of mechanisms) following the outbreak (during the  $T_1$ – $T_2$  time frame), as well as the direct, indirect, and moderating effects of the contextual variables. The material presented in this and previous section can be summarized to formulate our hypotheses as to how or why people's consumption habits can change as a result of the COVID-19 event.

#### 3.1. Effects of COVID-19

When the pandemic is viewed as an unforeseen event, it is expected to have both direct and indirect effects on consumer behaviors ( $T_2$ ). It is expected to have *direct effects* for two reasons. First, it creates acute stress that requires coping, which may take the form of changes in consumption habits. Second, events and changes that people experience alone or collectively (at  $T_1$ ) are interdependent, as the occurrence of an expected or unexpected event increases or decreases the probability of occurrence of other events (Mayer and Tuma, 1990); and thus, changes in consumer behaviors could be related not only to COVID-19 but also to other events that are the consequences of the pandemic event (e.g., job loss, working remotely); and many such events may directly lead to additional changes in consumption activities (Birtus & Lăzăroiu, 2021; Pop et al., 2022; Smith & Machova, 2021). Thus, as life events tend to be interdependent, each event increases or decreases the probability of the occurrence of other events, even in the absence of stress, some of which may take the form of consumption activities (viewed as events; Moschis, 2019). Therefore, it is hypothesized that:

*H1: The level of acute stress experienced is associated with the person's experience of the outbreak directly leads to (a) changes in consumption patterns and (b) the onset of new ones.*

The pandemic is also expected to have *indirect effects* on consumer behaviors by setting in motion the adaptation mechanisms of socialization, stress and coping, and human capital development. It increases knowledge about the virus, elevates levels of chronic stress and sets in motion socialization processes in the form of interaction with three different types of agents of change—personal, mass media, and social media (Boonrod, 2020; Mäntymäki et al., 2022; Saltzman et al., 2020). Thus, it is hypothesized that:

*H2: The level of acute stress associated with one's experience of the pandemic increases one's knowledge about the virus.*

*H3: The level of acute stress associated with one's experience of the pandemic increases one's experience of chronic stress.*

*H4: The level of acute stress associated with one's experience of the pandemic increases one's interaction with (a) personal, (b) mass media, and (c) social media sources of information about the pandemic.*

### 3.2. Effects of adaptation processes

The LCP, as exemplified in Figure 1, suggests that levels of stability or changes in consumer behaviors (at  $T_2$ ) are determined in part by the extent to which the COVID-19 outbreak sets in motion the three types of mechanisms that people employ in their efforts to adapt to the new life conditions created by the pandemic; and the adaptation mechanisms, in turn, lead to the onset and changes in consumer behavior, as suggested by several theories and research. First, theories of cognitive and personality development suggest that people may change their behaviors as a result of changes in human capital (Moschis, 2019). For example, people may engage in activities, including information seeking from socialization agents, that help enhance their knowledge about the transmission of viruses (increase in human capital), and engage in prophylactic activities that change their behaviors in the marketplace, such as increase in the use of disinfectants and delivery services (Guo et al., 2021; Xie et al., 2020).

*H5: Increase in knowledge about the virus leads to (a) changes in consumer behaviors and (b) the onset of new ones.*

Second, unexpected events like the COVID-19 outbreak tend to be of short duration; they create acute stress that may elevate chronic stress, which is the result of persisting life conditions due to role enactment (e.g., caregiving, role overload; Moschis, 2007b; Thoits, 1995). Both types of stressors require coping in the form of intensifications of learned behaviors, or the onset new ones, which help reduce stress and establish a psychological equilibrium. Several such behaviors are in the form of consumption activities that could take various forms, such as the elevation of consumption of products and services such as drugs and alcohol, online shopping and use of delivery services (e.g., Moschis, 2007b). Thus, acute stress may not only directly lead to the onset and changes in consumer behaviors directly (H1) but also indirectly via chronic stress.

*3.2.1. H6: Higher levels of chronic stress lead to (a) changes in consumer behaviors and (b) the onset of new ones*

Third, reliance on socialization agents may affect consumer behaviors. People may be socialized to new realities imposed by the pandemic event, with conformity to new expected or imposed social norms (e.g., wearing a face mask, social distancing) communicated to them by socialization agents—i.e., formal sources (e.g., media), informal sources (e.g., family, peers, co-workers), or social platforms (e.g., Internet, Facebook; Boonrod, 2020; Granderath et al., 2020; Saltzman et al., 2020). Conforming to new norms and enacting new roles due to COVID-19 also entail changes in existing patterns of consumption and the onset of new ones (e.g., online shopping, remote health monitoring).

*H7: Greater reliance on personal sources leads to (a) changes in consumer behaviors and (b) the onset of new ones; greater reliance on mass media promotes (c) changes in consumer behaviors and (d) the onset of new ones; and increase use of social media leads to (e) changes in consumer behaviors as well as (f) the onset of new ones.*

The effects of these socialization agents on consumer behaviors may also be indirect, helping the person gain knowledge about the virus from each type of these agents.

*H8: Increase in knowledge about the virus is positively related to frequency of interaction with (a) personal sources, (b) mass media, and (c) social media.*

### 3.3. Effects of contextual variables

With respect to the role of the contextual factors (outside the shaded area in Figure 1), the effects of timing and time (Ts) are also relevant to the study of the impact of the pandemic event on consumer behavior. According to LCP's axioms, the timing of the COVID-19 outbreak has relevance because of a lack of preparation for the event (e.g., availability of a vaccine). For expected or normative events (e.g., influenzas, retirement, marriage, birth of first child), people have adequate time for preparation; and adaptation to a changing life condition, such as retirement, can occur over a longer period of time. Therefore, the timing of an event is most important (e.g., most stressful, requiring greater need for adaptation) when the event is unexpected or "off time" (e.g., Elder, 1998; Moschis, 2019). And because this particular unexpected outbreak may have greater potential adverse effects on older than younger people, timing is more likely to affect the mindset and behavior of older than younger consumers, as in the case of patronizing certain retail establishments of high virus transmission risk (e.g., hair salons, airlines, restaurants and bars).

*H9: Age is positively associated with (a) changes in consumer behaviors and (b) the onset of new consumer activities.*

The LCP's axiom of duration further suggests that the probability of change in one's behavior (or the onset of a new behavior) in response to an event is duration-dependent—i.e., it changes with the passage of time within the risk period (Elder, 1998; Moschis, 2019). For example, with respect to the onset of a new behavior, the risk period for the onset of purchases of prophylactic products (e.g., masks, disinfectants) due to COVID-19 began at the time of event occurrence or awareness of the outbreak. Once people enter the risk period, they are "at risk" of changing their behavior in response to the occurred event, with a longer duration (time) increasing the likelihood of the onset of new behaviors. With respect to changes in existing behaviors, according to the LCP, a person's duration at any given state (e.g., as user of a product) has developmental implications (Hetherington and Baltes, 1988), with longer durations resulting in continuity (stability in existing behavior) and shorter durations leading to increasing likelihood of change in behavior (Moschis, 2019).

*H10: The longer a person has been aware of the pandemic, the lower the likelihood of (a) changes in existing consumer activities and (b) the higher the likelihood of the onset of new consumer activities.*

Additional contextual factors can have direct, indirect and moderating effects on outcomes (T2). For example, agency-related factors (Figure 1, e.g., self-esteem, locus of control, previous life experiences with acute and chronic stressors) affect the way a person is likely to respond to this pandemic event in general (e.g., Thoits, 1995), and the consumption-related behaviors that reflect coping strategies in response to acute and chronic stressors (Moschis, 2007b). And relevant structural factors (Ss) are also likely to directly or indirectly affect outcomes. For example, the duration of the pandemic event (at  $T_1$ ) and the subsequent onset and continuity of new consumption activities in the form of coping responses (at  $T_2$  in Figure 1; e.g., remote health monitoring, use of delivery services) as a result of this event are likely to be directly affected by the length of one's experience of structural factors (e.g., lockdowns, availability of vaccines), with longer durations of these structural factors during the  $T_1$ – $T_2$  time frame increasing the likelihood of the onset and continuity of these new consumption activities and the establishment of new patterns of consumer behavior. Similarly, changes in consumer behaviors (at  $T_2$  in Figure 1) that are presumed to be the direct result of the pandemic (transactional effects—Figure 1), or the indirect result of this event via the three adaptation mechanisms, may be the consequence of changes in market structures, as in the case of increased food consumption at-home due to the duration of the lockdowns, underscoring the moderating effects of structural factors.

Finally, with respect to the three social-structural factors (SES, gender, and family composition) we expect people in a higher SES to be more knowledgeable about the COVID-19 virus, women to experience higher levels chronic stress than men (due to greater role overload), and persons in larger families to experience less acute stress than those in smaller families, as large families offer greater support to each other, helping to buffer the effects of stress (Thoits, 1995). Thus, we hypothesize that:

*H11: Socioeconomic status is positively associated with knowledge about the virus.*

*H12: Women are more likely than men to experience chronic stress.*

*H13: Consumers living in larger families are less likely than those living in smaller families to experience acute stress associated with one's experience of the pandemic.*

#### **4. Methodology**

##### **4.1. Sample**

The study used the quantitative method to test the hypothesized relationships the recently developed of multi-theoretical life course paradigm with regard to COVID-19 phenomenon. The purpose of quantitative approach is to develop the model and test the hypotheses (Taguchi, 2018) and to aid in understanding the onset of new patterns of consumption. The back-translation of questionnaire from English to Thai was done before testing on the readability. Thai respondents who met the respondents' criteria were asked to evaluate and provide feedback on the Thai version of questionnaire. The feedback and suggestions on wordings, sentence structure and additional explanations to elaborate the meaning are employed to improve the questionnaire before the data collection process.

The data used in this study were collected during the COVID-19 outbreak via Milieu mobile panel specialist. This mobile panel is considered to be most suitable, as the use of traditional or intercept methods are not applicable during the government restrictions on the spread of the pandemic. Recently awarded as Market Research Agency of the year 2022, the Milieu platform has been operating in Thailand since 2018. It uses a proprietary data engine and its own team to develop the software and data storage. With its head office located in Singapore, the Milieu platform consists of 401,000 active panelists and up to 3,000 responses daily from 52% female and 48% male with diverse age range and income. The panelists are recruited from various parts of Thailand and are required to pass screening questions to assess for their accuracy, consistency and engagement in answering questions. Their personal profiles, lifestyles and general attitude are collected and analyzed in an aggregated manner based on the ESOMAR international code of conduct.

In the current study, the stratified random sampling method were applied. The questionnaire was presented via the mobile application to 575 panelists. All responses such as straight-lining, speeding, high number of missing responses, indicating a lack of attention and carelessness were excluded from the analysis. From these exclusions, a total of 300 completed and useable questionnaires were obtained in April 2020 during the pandemic. Respondents were selected randomly. The age distribution was as follows: 19–29 years (45%), 30–44 years (31.7%) and 45 years and above (23.3%) ( $M = 33.4$ ,  $SD = 13.9$ ). Fifty-three percent of respondents were females and 70.7% single. Sixty percent of the respondents had income lower than 10,000 THB. Sample characteristics are shown in Table 1.

##### **4.2. Measures**

The measures used in the study were adapted from previous studies and expert opinions of academics and doctors were also used to develop new instruments. *Acute stress* refers to the person's concerns

**Table 1. Sample characteristics**

| Age            | 16–29            | 30–44         | 45 and above  |                  |       |
|----------------|------------------|---------------|---------------|------------------|-------|
|                | 135(45%)         | 95(31.7%)     | 70(23.3%)     |                  |       |
| Gender         | Male             | Female        |               |                  |       |
|                | 141(47%)         | 159(53%)      |               |                  |       |
| Income         | Below 10,000Baht | 10,000–29,999 | 30,000–49,000 | 50,000 and above |       |
|                | 187(62.3%)       | 73(24.4%)     | 17(5.7%)      | 23(7.6%)         |       |
| Marital status | Married          | Single        | Others        |                  |       |
|                | 68(22.7)         | 212(70.7%)    | 20(6.7%)      |                  |       |
| Education      | No degree        | Vocational    | Bachelor      | Master           | Phd   |
|                | 118(39.2%)       | 85(28.2%)     | 84(27.9%)     | 10(3.3%)         | 3(1%) |
| Family size    | 1 person         | 2 persons     | 3–4 persons   | 5 and above      |       |
|                | 7 (2.3%)         | 25(8.3%)      | 169(56.1%)    | 99(32.9%)        |       |
| SES            | Low SES          | High SES      |               |                  |       |
|                | 160(53.3%)       | 140(46.7%)    |               |                  |       |

about COVID-19. It was measured using a summated scale of six items (shown in the [Appendix](#)), with responses measured on a five-point “strongly disagree” to “strongly agree” scale (Alpha = 0.75). *Chronic stress* was measured using the seven-item construct that was used in previous research in consumer behavior and psychology (e.g., Mathur et al., 2008; Norris & Murrell, 1984; Alpha = 0.86).

Measures of the respondent’s interaction with socialization agents were developed by presenting to participants nine sources of information and asking them to indicate whether each has not been helpful, somewhat helpful, helpful, or very helpful in informing them about COVID-19. Exploratory factor analysis extracted three factors: *Personal* (parents, close friends, and co-workers), *mass media* (newspaper, TV), and *social media* (Internet and social media). Alphas for these measures were 0.85, 0.74, and 0.87, respectively.

The *knowledge* measure of COVID-19 was adapted from (Zhong et al., 2020) and consisted of 10 statements, asking respondents to indicate whether each statement was “true” “false” or “I don’t know.” The 10 statements are shown in the [Appendix](#). The correct answer was coded as 1 and incorrect or don’t know answers were coded as 0. The total knowledge score was calculated from the 10 items to form a 0-to-10-point index.

Regarding the contextual factors, *gender* was measured using a nominal scale, male = 1 and female = 2. *Age* was assessed using respondents’ date of birth. *SES* was based on factor scores based on household income and education level (1 = below mean/lower, 2 = above/higher). *Family composition* was a measure of household size (1 person = 1, 2 persons = 2, 3–4 persons = 3, 5–7 persons = 4, to 8 persons and above = 5). *Duration* was based on the number of months respondents had been aware of the virus (first experienced Covid-19, using a 0 to 5-point scale (not experienced = 0, April = 1, March = 2, February = 3, January = 4, before 2020 = 5).

*Consumer behaviors* consisted of two measures: The first was a measure of *changes in consumer behaviors*. Respondents were asked to indicate whether, in comparison to their behaviors before the pandemic, they now were “doing less often or stopped doing or not doing at all”, “doing as often as last year”, or “started doing or doing more often” 15 consumption-related activities (“as often” = 0, else = 1) shown in the [Appendix](#). The second measure tapped the *onset of preventative consumption behaviors* related to COVID-19, using five activities shown in the [Appendix](#) (doing or doing more = 1, else = 0). Indexes of the number of changes in consumer behaviors (M = 8.41,

SD = 3.22) and the onset of new preventive behaviors ( $M = 2.86$ ,  $SD = 1.39$ ) were constructed from these responses.

## 5. Results

Table 2 shows correlations, means, and standard deviations for explanatory variables. Partial correlations and ANOVA are applied for data analysis. Preliminary screening data and assumption checks for partial correlations are acceptable. Partial correlations are applied to test hypotheses 1–10 while controlling the influence of other variables (i.e., duration, SES, gender, family composition); and independent sample t-test and ANOVA are employed to test hypotheses 11–13. Discussion of the appropriateness of the statistical tests used can be found elsewhere (e.g., Churchill & Brown, 2004).

Hypothesis 1 posits that the level of acute stress associated with the person's experience of the outbreak leads to changes in existing consumption patterns (H1a) and the onset of new ones (H1b). The results of partial correlation show a positively significant relationship between the level of acute stress and changes in behaviors ( $r = 0.13$ ,  $p < 0.05$ ); similarly, a significant positive relationship emerges between the level of acute stress and the onset of new preventive behaviors ( $r = 0.09$ ,  $p < 0.10$ ). Hence, only H1a is supported at .05 level.

Hypothesis 2 expects the level of acute stress the person experiences due to the outbreak to be positively associated with the person's level knowledge about the virus. The result of the partial correlation is insignificant ( $r = 0.06$ ,  $p > 0.05$ ), providing no support for H2.

Hypothesis 3 posits that the level of acute stress the person experiences due to the outbreak elevates the level of chronic stress. The data supports this hypothesis, showing a strong positive significant relationship between acute stress and chronic stress ( $r = 0.51$ ,  $p < 0.001$ ).

Hypothesis 4 suggests that the level of acute stress associated with the person's experience of the outbreak sets in motion socialization processes in the form of interaction with three different agents of change—personal (H4a), mass media (H4b), and social media (H4c). The results are significant for personal agents (H4a  $r = 0.23$ ,  $p < 0.05$ ) and mass media agent (H4b  $r = 0.16$ ,  $p < 0.05$ ), while the relationship between acute stress and social media is insignificant. Hence, H4a and H4b are supported; while, H4c is not supported.

Hypothesis 5 states that knowledge about COVID-19 leads to changes in consumer behaviors (H5a) and the onset of new ones (H5b). The data produced insignificant relationships between knowledge and changes in consumer behaviors and the onset of new behaviors. Hence, H5a and H5b are not supported.

Hypothesis 6 posits that chronic stress leads to changes in consumer behaviors (H6a) and the onset of new consumer behaviors (H6b). The results yield insignificant relationships, providing no support for H6a and H6b.

Hypothesis 7 suggests that the person's interaction with socialization agents leads to changes in consumer behaviors and the onset of new ones—i.e., personal (H7a and H7b), mass media (H7c and H7d), and social media (H7e and H7f). These relationships can not be confirmed by our data. Therefore, these hypotheses are not supported.

Hypothesis 8 assumes that the effects of these socialization agents on consumer behaviors may also be indirect, helping the person gain knowledge about the virus from each type of these agents—personal (H8a), mass media (H8b), and social media (H8c). The results show insignificantly relationships of these variables to knowledge, providing no support for these hypotheses.

**Table 2. Means, standard deviations, and correlations of variables**

|                               | Mean  | SD    | 1      | 2      | 3      | 4      | 5       | 6      | 7      | 8       | 9      | 10    |
|-------------------------------|-------|-------|--------|--------|--------|--------|---------|--------|--------|---------|--------|-------|
| 1.Acute stress (COVID-19)     | 2.66  | 0.59  |        |        |        |        |         |        |        |         |        |       |
| 2.Socialization- Personal     | 2.98  | 0.69  | .210** |        |        |        |         |        |        |         |        |       |
| 3.Socialization- Mass media   | 3.18  | 0.51  | .155** | .445** |        |        |         |        |        |         |        |       |
| 4.Socialization- Social media | 3.15  | 0.75  | 0.081  | .421** | .503** |        |         |        |        |         |        |       |
| 5.Chronic stress              | 2.49  | 0.65  | .528** | 0.019  | 0.059  | -0.009 |         |        |        |         |        |       |
| 6.Knowledge                   | 6.47  | 1.64  | 0.005  | 0.096  | 0.003  | 0.055  | -0.03   |        |        |         |        |       |
| 7.Duration                    | 1.60  | 0.63  | 0.087  | 0.05   | 0      | 0.09   | 0.048   | .118*  |        |         |        |       |
| 8.Age (Timing)                | 33.38 | 13.88 | -.143* | .133*  | 0.039  | 0.02   | -.251** | .320** | -0.015 |         |        |       |
| 9.Gender                      | 1.53  | 0.50  | 0.098  | -0.018 | 0.048  | 0.066  | .129*   | -.117* | 0.026  | -.354** |        |       |
| 10.SES                        | 1.47  | 0.50  | -0.1   | 0.011  | -0.03  | -0.007 | -0.103  | .152** | -0.068 | .164**  | -0.003 |       |
| 11.Family composition         | 3.25  | 0.77  | 0.051  | 0.005  | -0.001 | 0.006  | 0.076   | -0.038 | -0.037 | -0.063  | 0.019  | 0.078 |

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

Note: Numbers on the top of the table refer to corresponding numbered variables shown vertically.



**Table 3. Results summary**

| <b>Hypothesis</b> | <b>Relationship</b>   | <b>Result</b> |
|-------------------|---|---------------|
| H1a               | The level of acute stress experienced is associated with the person's experience of the outbreak directly leads to changes in consumption patterns.                 | Supported     |
| H1b               | The level of acute stress experienced is associated with the person's experience of the outbreak directly leads to the onset of new ones.                           | Not Supported |
| H2                | The level of acute stress associated with one's experience of the pandemic increases one's knowledge about the virus.   | Not Supported |
| H3                | The level of acute stress associated with one's experience of the pandemic increases one's experience of chronic stress.  | Supported     |
| H4a               | The level of acute stress associated with one's experience of the pandemic increases one's interaction with personal sources of information about the pandemic.     | Supported     |
| H4b               | The level of acute stress associated with one's experience of the pandemic increases one's interaction with mass media sources of information about the pandemic.   | Supported     |
| H4c               | The level of acute stress associated with one's experience of the pandemic increases one's interaction with social media sources of information about the pandemic. | Not Supported |
| H5a               | Increase in knowledge about the virus leads to changes in consumer behaviors.   | Not Supported |
| H5b               | Increase in knowledge about the virus leads to changes in the onset of new ones.  | Not Supported |
| H6a               | Higher levels of chronic stress lead to changes in consumer behaviors.  | Not Supported |
| H6b               | Higher levels of chronic stress lead to the onset of new ones.  | Not Supported |
| H7a               | Greater reliance on personal sources leads to changes in consumer behaviors.  | Not Supported |
| H7b               | Greater reliance on personal sources leads to the onset of new ones.  | Not Supported |
| H7c               | Higher levels of mass media leads to changes in consumer behaviors.   | Not Supported |
| H7d               | Higher levels of mass media leads to the onset of new ones.   | Not Supported |
| H7e               | Higher levels of social media leads to changes in consumer behaviors.   | Not Supported |

(Continued)

| Hypothesis | Relationship   | Result        |
|------------|--|---------------|
| H7f        | Higher levels of social media leads to the onset of new ones.  | Not Supported |
| H8a        | Increase in knowledge about the virus is positively related to frequency of interaction with personal sources.   | Not Supported |
| H8b        | Increase in knowledge about the virus is positively related to frequency of interaction with mass media.   | Not Supported |
| H8c        | Increase in knowledge about the virus is positively related to frequency of interaction with social media.   | Not Supported |
| H9a        | Age is positively associated with changes in consumer behaviors.   | Not Supported |
| H9b        | Age is positively associated with the onset of new consumer activities.  | Not Supported |
| H10a       | The longer a person has been aware of the pandemic, the lower the likelihood of changes in existing consumer activities.   | Not Supported |
| H10b       | The longer a person has been aware of the pandemic, the higher the likelihood of the onset of new consumer activities.   | Not Supported |
| H11        | Socioeconomic status is positively associated with knowledge about the virus.  | Supported     |
| H12        | Women are more likely than men to experience chronic stress.   | Supported     |
| H13        | Consumers living in larger families are less likely than those living in smaller families to experience acute stress associated with one's experience of the pandemic. | Not Supported |

Hypothesis 9 posits that changes in, and the onset of, consumer behavior are expected to be positively related to age. The results show insignificant relationship of age changes in consumer behavior (H9a) and the onset of new ones (H9b). Therefore, H9a and H9b are not supported.

Hypothesis 10 states that the changes and onset in consumer behavior are expected to be related to duration. The result shows that duration is not significantly related to changes (H10a) and the onset of new ones (H10b). Hence, H10a and H10b are not supported.

Hypothesis 11 suggests that people in higher SES positions are more knowledgeable about the COVID-19 virus. The results reveal a significant difference of knowledge scores between higher and lower SES positions ( $t = -2.657, p < 0.05$ ). Therefore, H11 is supported.

Hypothesis 12 predicts that women are experience higher levels chronic stress than men. The results support this hypothesis, showing that females have a significantly higher level of chronic stress than males ( $t = -2.237, p < 0.05$ ).

Finally, Hypothesis 13 posits that persons in larger families experience less acute stress than those in smaller families. This hypothesized relationship is not supported by the data. Hence H13 is not supported.

Table 3 shows summary of the hypotheses testing and relationship with six hypotheses show supporting results.

## 6. Discussion

The present study was designed to determine the effect of COVID-19 pandemic on the changes of consumer patterns in Thailand. Overall, the findings show that the COVID-19 pandemic, which viewed as a stressful life event, could directly lead to significant changes in Thai consumers' behaviors, while the absence of indirect effects of the pandemic offer alternative explanations of the role of mediating variables.

Consistent with our hypotheses, the level of acute stress associated with consumers' experience of the COVID-19 pandemic generates a significant direct impact on the changes of consumer's consumption patterns, such as hoarding, use food delivery and purchase of insurance, but not the onset of new ones. The relationship between acute stress and the onset of preventive behaviors approached significance, suggesting the need for replicating the study using more than five types of behaviors. These findings lend support to previous studies, which suggest that stress can trigger changes in consumption behaviors as a means of coping (Moschis, 2007). Consistent with most results reported in recent literature (Brooks et al., 2020), this study finds that the level of acute stress also leads to the increase of other mental health problem, such as anxiety and chronic stress.

Moreover, the level of acute stress also leads consumers to interact more with socialization agents, which include personal, mass media and social media channels. However, the absence of links between these agents and consumer behaviors may provide alternative explanations for the emerged relationships between acute stress and interaction with socialization agents. According to recent COVID-19 research (e.g., Ellis et al., 2020; Mohammadi et al., 2020), social media use during lockdown is associated with mental health problems, such as depression and anxiety. In contrast, mass media are often characterized as educational media that inform the public about governmental policies and current world and national crises (Wong, 2004). They are perceived more trustworthy and formal. As a result, people who are stressed may be more likely to trust information obtained through mass media. In fact, Thai people were found to watch TV more often during the early phases of COVID-19 to gain the most up-to-date information (Boonrod, 2020).

Social support has been found to be an effective defense mechanism to prevent mental health problems during crisis (Saltzman et al., 2020; Unal et al., 2022), likely because it increases psychological well-being (Bilge & Bilge, 2020), which can allow people to remain psychologically stable to cope with stressful situations (Kurudirek et al., 2022). Our findings are in line with these studies, which found that stressful people seek more interpersonal communication during pandemics.

It is widely acknowledged that information plays a crucial role in disaster management activities (Chen et al., 2008;), given the information-intensive nature of these activities. Previous research suggests that during a disease outbreak or a disaster, people may reduce anxiety caused by uncertainty by seeking relevant information (Lachlan et al., 2009;). Therefore, our findings are no surprise that stressful consumers prefer to use socialization agents to gain information as a coping strategy to reduce stress, rather than engaging in consumption activities. Absence of a link between socialization agents and consumption activities also suggest that these sources of consumer information provide little guidance with respect to consumption norms appropriate for handling this pandemic. And it could also be due to misinformation or conflicting information present in these sources of consumer information. As Campbell and colleagues (Campbell et al.,

2020) observe, “Lack of information, misinformation, and conflicting information threatened consumers’ ability to understand, plan, and cope with the health, economic, and social threats” (p. 1).

Contrary to our expectations, chronic stress does not drive any change in consumers’ consumption patterns, a finding which suggests that consumers may employ coping strategies based on emotions rather than behaviors. Researchers have found that compared with acute stress, chronic stress has stronger association with depressive symptoms (McGonagle & Kessler, 1990), and it can lead to more psychological adjustment to restore balance (Avison & Turner, 1988; Mitchell et al., 1983). This explanation is consistent with the strategies people use to cope with stress. In a stressful situation, people either employ problem-focused coping or emotion-focused coping strategies to deal with the stress. Problem-focused coping involves trying to alter or eradicate the unpleasant condition by means of cognitive and behavioral response. Emotion-focused coping, on the other hand, requires trying to monitor emotional responses elicited by the situation (Folkman & Lazarus, 1980). Thus, it is reasonable to argue that when consumers experience chronic stress, they are more likely to reduce such stress by employing cognitive-driven emotion-focused coping rather than behavioral-driven problem-focused coping. Consequently, behavioral change is not likely to occur as a result of chronic stress.

Another unconfirmed relationship is the absence of a link between the level of acute stress associated with consumers’ experience of the pandemic and their knowledge about the virus. Our data do not suggest that a stressful consumer is likely to gain more knowledge about the virus that contributes to his or her stress. The results are somewhat incongruent with previous findings which suggested that individuals are more motivated to acquire relevant knowledge when they believe they are at risk (Ho, 2012).

Prior research suggests that in order to turn information into individual knowledge, consumers may need to apply “absorptive capacity” to further process it (Huang et al., 2017; Pan et al., 2020). Although our findings show that stressful consumers may have increased their interaction with socialization agents to gain more information, given the sheer volume of information available online in the early stage of the pandemic, it is likely that consumers were still lacking of absorptive capacity to process the newly acquired information (Huang et al., 2017; Pan et al., 2020). This may be especially true among our respondents who tend to be younger with a relatively lower education level. Further exploratory analysis shows that knowledge is positively correlated with duration ( $r = .12, p < .041$ ), which reveals that it takes time to develop new knowledge. Therefore, it is reasonable to conclude that at the early stage of the pandemic, stressful consumers are less likely to obtain adequate knowledge about the virus, and consequently, their limited knowledge does not lead to significant changes in their consumption behaviors.

Consistent with findings from previous studies (Ho, 2012; Zhong et al., 2020), our findings reveal that people in higher SES tend to be more knowledgeable about the COVID-19 pandemic. Compared with men, women tend to experience higher levels chronic stress due to a greater role overload (Thoits, 1995). However, contrary to our hypothesis, duration has no impact on the changes in existing consumer behaviors. As our study participants completed surveys within a short period and experienced the onset of the pandemic at about the same time (e.g., upon announcement of lockdowns), there was relatively low variance for this variable. Also, age had no effect on changes in consumer behaviors and the onset of new behaviors. It might be that, compared to younger consumers, due to age-related deficits older consumers use fewer coping strategies more frequently, rather than a greater number of strategies (Moschis, 2007b). Lastly, we found that people living in larger family size did not experience less acute stress than those in smaller families. The finding implies that the presence of other family members does not help reduce acute stress. As our expectation about the buffering effects of family applies to a single person experiencing stress (Thoits, 1995), this finding suggests that this effect may not apply when several family members collectively experience the same stressor.

## 7. Conclusion

The results of this research have several theoretical and practical implications. This study serves as the first attempt to employ a life course perspective to explore the impact of the COVID-19 pandemic on consumer behaviors during the initial phase of the outbreak. It offers a widely accepted conceptual framework in which future studies could be based and the findings of effects of other disasters could be interpreted. Furthermore, despite its exploratory nature, this study offers some insights into how consumers could change their consumption behaviors in the context of a pandemic such as COVID-19, adding knowledge regarding the effects of other disasters on consumer behaviors (DeWaard, 2016; Kennett-Hensel et al., 2012; Rakrachakarn & Kohlbacher, 2020; Sneath et al., 2009).

### 7.1. Contributions to previous models

In the wake of the COVID-19, a special issue of the *Journal of Consumer Research* was devoted to articles that attempt to explain consumers' responses to external threats, with its lead article focusing on the development of a framework for understanding consumers' reactions to events that threaten consumer well-being (Campbell et al., 2020). The architects of this framework use the limited research on the COVID-19 pandemic as well as other relevant research to justify relationships in their model. In developing their framework, the authors appear to implicitly subscribe to the life course paradigm. In a nutshell, they suggest that life disruptions caused by events that threaten ontological security prompt consumer and market "adaptive" responses. While the categories of elements in the Campbell et al.'s framework of consumer responses to threats (CRTT) do not appear similar to those of the life course conceptual model (Figure 1), most of their framework's assumptions and variables discussed have features present in the LCP, as exemplified in Figure 1. Therefore, perhaps the greatest contribution this research can make is in helping improved the Campbell et al.'s model in several ways, by casting their model into the widely-accepted LCP.

First, the CRTT conceptual model makes a distinction between actual threats and potential threats; the former refers the threats experienced, while the latter refers anticipated threats. The authors explain this difference with an example: "anticipating that unemployment rates will increase would be a potential threat, while losing one's job would be an actual threat." (p. 3). These two types of threats are similar to anticipated events and experienced events, respectively, in the life course model (Moschis, 2019 &, 2021). A second feature common to both models pertains to the relationships between threats and disruptions. According to the Campbell et al.'s CRTT model, threats (also referred them as "stressors") can cause disruptions in consumers' lives. These disruptions can occur at cognitive, affective, and behavioral levels; they can disrupt norms and beliefs that "come together in the everyday practices and routines that make up consumers' lives" (p. 4). In life course research, any abrupt or gradual change experienced, environmental, behavioral, or mental, is seen as an event. "Events ( $T_1$ ) and outcomes ( $T_2$ ) may take the form of single choices or changes in thoughts and behaviors, both abrupt and gradual ... and they may also be in the form of patterns of thoughts and actions" (Moschis, 2021). Further, threats and disruptions in beliefs, norms, and daily routines are viewed as interdependent events, because "the increased or decreased likelihood of the occurrence of one such an event (at  $T_2$ ) depends on the occurrence of another event (at  $T_1$ )" (Moschis, 2019, p. 38).

Third, both models assume that changes in consumer behavior are the result of one's effort to re-establish a disrupted psychological equilibrium. In the CRTT model, the disrupted equilibrium is *ontological security*, a term that refers to "the degree to which consumers feel their world, and role within it, is secure and predictable" (Campbell et al., 2020, p. 4.). Disruption of ontological security is associated with feelings of insecurity, uncertainty, and anxiety. In the life course model, the disrupted psychological equilibrium is the organism homeostatic state. Internal and external changes (i.e., events) of sufficient magnitude threaten the organism's homeostatic equilibrium "because they create instability among inner forces, and stress is a signal that the organism is trying to reestablish stability and equilibrium" (Moschis, 2007, p. 431). Thus, the stress process is

viewed as a latent landscape of many aversive psychological feelings; and it subsumes those that characterize ontological insecurity.

Fourth, in both models the onset of new patterns of consumer behaviors and changes in the existing ones are viewed as outcomes of the person's effort to adjust to changes experienced, using control theory as a backdrop; and they both acknowledge that some changes orchestrated by human agency can be conceived of in the context of the gain or loss component of prospect theory (Campbell et al., 2020; Moschis, 2019). Furthermore, in the CRTT model behaviors reflect efforts to adapt to threat-induced events, while the life course model assumes that consumer behaviors are shaped by three adaptation processes; they are the result of coping responses to stressors, socialization processes, and changes in human capital. Both models distinguish between adaptive responses of short duration that reflect coping and those of long duration in the form of habits. However, the LCP differentiates between responses that are initially effortful and reflect coping, and those that are initially viewed as coping responses but over time evolve into permanent consumer habits that occur in the absence of stress, emphasizing the mechanisms of change (Moschis, 2007b).

Although Campbell and associates do not explicitly focus on other adaptation processes, they suggest that consumer responses to threatening events, such as COVID-19 outbreak, can be in the form of cognitive responses that entail increase in human capital (e.g., acquiring and evaluating new information) and may lead to changes in consumer behavior. The role of socialization processes as mechanisms are highlighted in other studies of the pandemic. A recent study by Pennycook et al. (2020) shows that people turn to social media in response to the pandemic, and how the effects of social media as socialization agents can shape a person's views on COVID-19 that can subsequently affect their consumer behavior in the forms of using ineffective remedies, over-reacting or under-reacting to this threatening event. The powerful effects of media, especially the role of public service advertisements, on people's perception of the severity of COVID-19 are also present in Kim et al.'s (2020) research. Thus, people may change their consumption habits and develop new ones (e.g., using disinfectants, stockpiling, online banking, videoconferencing), as they attempt to adjust to new life conditions and conform to new norms.

Fifth, both models acknowledge the importance of studying consumers over the course of their lives in order to understand their behavior at any given point in time. Although this view is the cornerstone of the LCP, it is also implicit in the CRTT model. Campbell and colleagues cite research to support their view on the development of behavioral patterns, explaining how "some consumers whose norms, beliefs, routines, and practices were disrupted by the worst and longest drought in Australian history developed trajectories of new practices to reassert ontological security and that some of these continued even after the threat eased" (p. 6). They acknowledge the importance of studying the effects of childhood on adult consumer behavior, and the need for longitudinal research for studying today's younger generation in terms of their future consumer behavior.

Sixth, several of the contextual effects shown in the life course conceptual model (Figure 1) are explicitly or implicitly assumed to be present in the CRTT model, including the reciprocal relationships between consumer responses and market responses (i.e., structural factors in the life course model). Additional structural factors viewed as moderating variables in the life course model (e.g., SES, cultural, institutional) are also present and serve as moderators in the CRTT model. Further, according to the paradigmatic principles of the LCP, duration at a given state has developmental implications, with longer durations promoting development and stability. This view is also shared by the developers of the CRTT model who state that "... the length of time that consumers engaged in threat-induced behavior is likely to affect the extent to which it becomes a habit" (p. 12). The effects of agency-related variables (e.g., psychological) on consumers' responses to events and adaptation processes in the life course model are also recognized in the CRTT model, where these factors "influence the effects of threat-induced ontological security on how consumers respond" (p. 8). Finally, the paradigmatic axiom of the agency's role in the construction of



one's life course, is implied in Campbell and colleagues' (Campbell et al., 2020) explanation of how new choices people make due to the COVID-19 pandemic shape new routines in family life, work, leisure, and consumption; and the paradigmatic axiom regarding a person's continuous development throughout life is also assumed to be relevant in the CRTT model where anxiety and instability "can also spark innovative and creative responses" (p. 6).

To summarize, views on how the COVID-19 pandemic and other forms of disasters can affect consumers are consistent with the main assumptions of the LCP. They can be integrated within the life course model that provides a multi-theoretical research framework for examining the efficacy of variables that underscore these views, as well as the effects of additional variables suggested by the LCP.

### 7.2. Managerial implications

There are a number of implications for marketers arising from the findings of the study, including the notion that consumers can change their consumption patterns in order to cope with stressful experiences. Our findings suggest that because consumers are likely to change their established consumption habits due to their experience of a significant life event, they may be more receptive to information, products and services that lead to the establishment of new consumption habits. Consumers' need for changes provide opportunities for marketers to satisfy the newly formed consumer needs and adjust their current marketing strategies to suit new consumption norms during and after the threatening event. Furthermore, the finding which suggests that a threatening event such as a pandemic may lead to consumers' reliance of information sources also has implications for policy makers. It suggests that policy makers should provide more consumption-related information through various channels to inform consumers and reduce fears and engagement in unnecessary panic buying. Finally, the findings of this study show that the level of acute stress associated with consumers' experience of threatening events, such as the COVID-19 pandemic, can lead to long-term negative psychological consequences. Therefore, policy makers should respond by providing adequate support and intervention programs to improve public well-being and mental health. In addition, despite efforts to counter COVID-19, governmental interventions have so far failed to address the negative impacts of overuse of social media. Adding it to the list of governmental measures may reduce the spread of the virus more effectively (Brailovskaia et al., 2021).

### 7.3. Limitations and future research

The generalizability of this study's findings and its implications should be viewed in the light of two major limitations. First, the scope of this study is limited in that it focuses on the impact of COVID-19 pandemic in its early stage in Thailand. Future studies in other countries using multiple time points may provide a higher level of external validity of the effects of the pandemic. Secondly, the respondents in this study tend to be single, relatively young, with relatively lower income and educational levels. Further research is required using samples with a wider range of demographic characteristics.

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#### References

- Addo, P. C., Jiaming, F., Kulbo, N. B., & Liangqiang, L. (2020). COVID-19: Fear appeal favoring purchase behavior towards personal protective equipment. *The Service Industries Journal*, 40(7-8), 471-490. <https://doi.org/10.1080/02642069.2020.1751823>
- Avison, W. R., & Turner, R. J. (1988). Stressful life events and depressive symptoms: Disaggregating the effects of acute stressors and chronic strains. *Journal of Health and Social Behavior*, 29(3), 253-264. <https://doi.org/10.2307/2137036>



- Bilge, Y., & Bilge, Y. (2020). Investigation of the effects of coronavirus and social isolation on psychological symptoms in terms of psychological resilience and coping styles. *Turkish Journal of Clinical Psychiatry*, 23. <https://doi.org/10.5505/kpd.2020.66934>
- Billari, F. C. (2009). The life course is becoming of age. *Advances in Life Course Research*, 14(3), 83–86. <https://doi.org/10.1016/j.alcr.2009.10.001>
- Birtus, M., & Lăzăroiu, G. (2021). The neurobehavioral economics of the COVID-19 pandemic: Consumer cognition, perception, sentiment, choice, and decision-making. *Analysis and Metaphysics*, 20, 89–101. <https://doi.org/10.22381/am2020216>
- Boonrod, A. (2020). Media use among Thai People post COVID 19 [https://www.bangkokbiznews.com/blog/detail/650398?utm\\_source=category&utm\\_medium=internal\\_referral](https://www.bangkokbiznews.com/blog/detail/650398?utm_source=category&utm_medium=internal_referral)
- Brailovskaia, J., Cosci, F., Mansueto, G., & Margraf, J. (2021). The relationship between social media use, stress symptoms and burden caused by coronavirus (Covid-19) in Germany and Italy: A cross-sectional and longitudinal investigation. *Journal of Affective Disorders Reports*, 3, 100067. <https://doi.org/10.1016/j.jadr.2020.100067>
- Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: Rapid review of the evidence. *The Lancet*, 395(10227), 912–920. [https://doi.org/10.1016/S0140-6736\(20\)30460-8](https://doi.org/10.1016/S0140-6736(20)30460-8)
- Campbell, M. C., Inman, J. J., Kirmani, A., & Price, L. L. (2020). In times of trouble: A framework for understanding consumers' responses to threats. *Journal of Consumer Research*, 47, 10.1093/jcr/ucaa036 3, 311–326. <https://doi.org/10.1093/jcr/ucaa036>
- Chen, R., Sharman, R., Chakravarti, N., Rao, H. R., & Upadhyaya, S. J. (2008). Emergency response information system interoperability: Development of chemical incident response data model. *Journal of the Association for Information Systems*, 9(3), 7. <https://doi.org/10.17705/1jais.00153>
- Churchill, G., & Brown, T. (2004). *Basic marketing research*. South-Western.
- Clemens, K. S., Matkovic, J., Faasse, K., & Geers, A. L. (2020). Determinants of safety-focused product purchasing in the United States at the beginning of the global COVID-19 pandemic. *Safety Science*, 130, 104894. <https://doi.org/10.1016/j.ssci.2020.104894>
- Colby, A. (1998). Foreword: Crafting life course studies. In J. A. Giele & G. H. Elder (Eds.), *Methods of life course research: Qualitative and quantitative approaches* (pp. 540). Sage.
- DeWaard, J. (2016). Disaster and life course processes. In M. Shanahan, J. T. Mortimer, & K. M. Johnson (Eds.), *Handbook of life course* (Vol. 2, pp. 321–340). Springer.
- Donthu, N., & Gustafsson, A. (2020). Effects of COVID-19 on business and research. *Journal of Business Research*, 117, 284–289. <https://doi.org/10.1016/j.jbusres.2020.06.008>
- Elder, G. H. (1998). Life course and human development. In W. Damon & R. Lerner (Eds.), *Handbook of child psychology* (pp. 939–991). John Wiley & Sons.
- Elder, G. H., George, L. K., & Shanahan, M. J. (1996). Psychosocial stress over the life course. In H. B. Kaplan (Ed.), *Psychosocial stress: Perspectives on structure, theory, life course, and methods* (pp. 247–292). Academic Press.
- Elder, G. H., Jr., & Johnson, M. K. (2001). The life course and human development: Challenges, lessons, and new directions. In R. A. Settersten (Ed.), *Invitation to the life course: Toward new understandings of later life*. Amityville, NY: Baywood.
- Elder, G. H., Johnson, M. K., & Crosnoe, R. (2003). The Emergence and Development of Life Course Theory. In J. T. Mortimer & M. J. Shanahan (Eds.), *Handbook of the Life Course*. Boston, MA: Handbooks of Sociology and Social Research. Springer. [https://doi.org/10.1007/978-0-306-48247-2\\_1](https://doi.org/10.1007/978-0-306-48247-2_1)
- Ellis, W. E., Dumas, T. M., & Forbes, L. M. (2020). Physically isolated but socially connected: Psychological adjustment and stress among adolescents during the initial COVID-19 crisis. *Canadian Journal of Behavioural Science/Revue Canadienne Des Sciences du Comportement*, 52(3), 177–187. <https://doi.org/10.1037/cbs0000215>
- Fabius, V., Kohli, S., Timelin, B., & Veranen, S. M. (2020). How COVID-19 is changing consumer behavior—Now and forever | McKinsey. <https://www.mckinsey.com/industries/retail/our-insights/how-covid-19-is-changing-consumer-behavior-now-and-forever>
- Folkman, S., & Lazarus, R. S. (1980). An analysis of coping in a middle-aged community sample. *Journal of Health and Social Behavior*, 21(3), 219–239. <https://doi.org/10.2307/2136617>
- Fortin, D., Uncles, M., & Fortin, D. (2011). The first decade: Emerging issues of the twenty-first century in consumer marketing. *Journal of Consumer Marketing*, 28(7), 472–475. <https://doi.org/10.1108/07363761111194767>
- Granderath, J. S., Sondermann, C., Martin, A., & Merkt, M. (2020). Actual and perceived knowledge about COVID-19: The role of information behavior in media. *Frontiers in Psychology*, 12, 778886. <https://doi.org/10.3389/fpsyg.2021.778886>
- Guo, J., Liao, M., He, B., Liu, J., Hu, X., Yan, D., & Wang, J. (2021). Impact of the COVID-19 pandemic on household disinfectant consumption behaviors and related environmental concerns: A questionnaire-based survey in China. *Journal of Environmental Chemical Engineering*, 9(5), 106168. <https://doi.org/10.1016/j.jece.2021.106168>
- Hartmann, N. N., & Lussier, B. (2020). Managing the sales force through the unexpected exogenous COVID-19 crisis. *Industrial Marketing Management*, 88, 101–111. <https://doi.org/10.1016/j.indmarman.2020.05.005>
- He, H., & Harris, L. (2020). The impact of Covid-19 pandemic on corporate social responsibility and marketing philosophy. *Journal of Business Research*, 116, 176–182. <https://doi.org/10.1016/j.jbusres.2020.05.030>
- Hetherington, E. M., & Baltes, P. B. (1988). Child psychology and life-span development. In E. M. Hetherington, R. M. Lerner, & M. Perlmutter (Eds.), *Child development in life-span perspective* (pp. 1–19). Lawrence Erlbaum Associates, Inc.
- Ho, S. S. (2012). The knowledge gap hypothesis in Singapore: The roles of socioeconomic status, mass media, and interpersonal discussion on public knowledge of the H1N1 flu pandemic. *Mass Communication & Society*, 15(5), 695–717. <https://doi.org/10.1080/15205436.2011.616275>
- Huang, J.-S., Pan, S. L., & Liu, J. (2017). Boundary permeability and online-offline hybrid organization: A case study of Suning, China. *Information & Management*, 54(3), 304–316. <https://doi.org/10.1016/j.im.2016.08.002>
- Ivanov, D. (2020). Predicting the impacts of epidemic outbreaks on global supply chains: A simulation-based analysis on the coronavirus outbreak (COVID-19/SARS-CoV-2) case. *Transportation Research Part E: Logistics and Transportation Review*, 136, 101922. <https://doi.org/10.1016/j.tre.2020.101922>
- Kennett-Hensel, P. A., Sneath, J. Z., & Lacey, R. (2012). Liminality and consumption in the aftermath of a natural disaster. *Journal of Consumer Marketing*, 29

- (1), 52–63. <https://doi.org/10.1108/07363761211193046>
- Kim, J. (2020). Impact of the perceived threat of COVID-19 on variety-seeking. *Australasian Marketing Journal (AMJ)*, 28(3), 108–116. <https://doi.org/10.1016/j.ausmj.2020.07.001>
- Kim, J., Giroux, M., Gonzalez-Jimenez, H., Jang, S., Kim, S., Park, J., Choi, Y. K., Lee, J. C., & Choi, Y. K. (2020). Nudging to reduce the perceived threat of coronavirus and stockpiling intention. *Journal of Advertising*, 49(5), 633–647. <https://doi.org/10.1080/00913367.2020.1806154>
- Krishnamurthy, S. (2020). The future of business education: A commentary in the shadow of the Covid-19 pandemic. *Journal of Business Research*, 117, 1–5. <https://doi.org/10.1016/j.jbusres.2020.05.034>
- Kurudirek, F., Arıkan, D., & Ekici, S. (2022). Relationship between adolescents' perceptions of social support and their psychological well-being during COVID-19 pandemic: A case study from Turkey. *Children and Youth Services Review*, 137, 106491. <https://doi.org/10.1016/j.chilyouth.2022.106491>
- Laato, S., Islam, A. K. M. N., Faraooq, A., & Dhir, A. (2020). Unusual purchasing behavior during the early stages of the COVID-19 pandemic: The stimulus-organism-response approach. *Journal of Retailing and Consumer Services*, 57, 102224. <https://doi.org/10.1016/j.jretconser.2020.102224>
- Lachlan, K. A., Spence, P. R., & Seeger, M. (2009). Terrorist attacks and uncertainty reduction: Media use after September 11. *Behavioral Sciences of Terrorism and Political Aggression*, 1(2), 101–110. <https://doi.org/10.1080/19434470902771683>
- Mäntymäki, M., Islam, A. N., Turel, O., & Dhir, A. (2022). Coping with pandemics using social network sites: A psychological detachment perspective to COVID-19 stressors. *Technological Forecasting and Social Change*, 179, 121660. <https://doi.org/10.1016/j.techfore.2022.121660>
- Mathur, A., Moschis, G. P., & Lee, E. (2008). A longitudinal study of the effects of life status changes on changes in consumer preferences. *Journal of the Academy of Marketing Science*, 36(2), 234–246. <https://doi.org/10.1007/s11747-007-0021-9>
- Mayer, K. U., & Tuma, N. B. (1990). Event History Analysis in Life Course Research.
- McGonagle, K. A., & Kessler, R. C. (1990). Chronic stress, acute stress, and depressive symptoms. *American Journal of Community Psychology*, 18(5), 681–706. <https://doi.org/10.1007/BF00931237>
- Mitchell, R. E., Cronkite, R. C., & Moos, R. H. (1983). Stress, coping, and depression among married couples. *Journal of Abnormal Psychology*, 92(4), 433. <https://doi.org/10.1037/0021-843X.92.4.433>
- Mohammadi, M. R., Zarafshan, H., Bashi, S. K., Mohammadi, F., & Khaleghi, A. (2020). The role of public trust and media in the psychological and behavioral responses to the COVID-19 pandemic. *Iranian Journal of Psychiatry*, 15(3), 189. <https://doi.org/10.18502/ijps.v15i3.3811>
- Moschis, G. P. (1987). *Consumer socialization: A life-cycle perspective*. Lexington Books.
- Moschis, G. P. (2007). Stress and Consumer Behavior. *Journal of the Academy of Marketing Science*, 35, 430–444. <https://doi.org/10.1007/s11747-007-0035-3>
- Moschis, G. P. (2007a). Life course perspectives on consumer behaviour. *Journal of the Academy of Marketing Science*, 35(2), 295–397. <https://doi.org/10.1007/s11747-007-0027-3>
- Moschis, G. P. (2007b). Stress and consumer behavior. *Journal of the Academy of Marketing Science*, 35(3), 430. <https://doi.org/10.1007/s11747-007-0035-3>
- Moschis, G. P. (2019). *Consumer behaviour over the life course: Research frontiers and new directions*. Springer Publishing, Inc.
- Moschis, G. P. (2021). The life course paradigm and consumer behavior: Research frontiers and future directions. *Psychology & Marketing. Psychology & Marketing*, 38 (11), 2034–2050. August 30, 2021 <https://doi.org/10.1002/mar.21586>
- Norris, F. H., & Murrell, S. A. (1984). Protective function of resources related to life events, global stress, and depression in older adults. *Journal of Health and Social Behavior*, 25(4), 424–437. <https://doi.org/10.2307/2136380>
- Pantano, E., Pizzi, G., Scarpi, D., & Dennis, C. (2020, August). Competing during a pandemic? Retailers' ups and downs during the COVID-19 outbreak. *Journal of Business Research*, 116, 209–213. <https://doi.org/10.1016/j.jbusres.2020.05.036>
- Penneycook, G., McPhetres, J., Zhang, Y., Lu, J. G., & Rand, D. G. (2020). Fighting COVID-19 misinformation on social media: Experimental evidence for a scalable accuracy-nudge intervention. *Psychological Science*, 31(7), 770–780. <https://doi.org/10.1177/0956797620939054>
- Pop, R. A., Dabija, D. C., Pelau, C., & Dinu, V. (2022). Usage intentions, attitudes, and behaviours towards energy-efficient applications during the COVID-19 pandemic. *Journal of Business Economics and Management*, 23(3), 668–689. <https://doi.org/10.3846/jbem.2022.16959>
- Prentice, C., Chen, J., & Stantic, B. (2020). Timed intervention in COVID-19 and panic buying. *Journal of Retailing and Consumer Services*, 57, 102203.
- Rakrachakarn, R., & Kohlbacher, F. (2020). Natural disasters and the life course paradigm: The case of 2011 Japanese triple disaster. *Journal of Global Scholars of Marketing Science*, 30(1), 76–87. <https://doi.org/10.1080/21639159.2019.1613910>
- Saltzman, L. Y., Hansel, T. C., & Bordnick, P. S. (2020). Loneliness, isolation, and social support factors in post-COVID-19 mental health psychological Trauma: Theory. *Research, Practice, and Policy*. <https://doi.org/10.1037/tra0000703>
- Smith, A., & Machova, V. (2021). Consumer tastes, sentiments, attitudes, and behaviors related to COVID-19. *Analysis and Metaphysics*, 20, 145–158. <https://doi.org/10.22381/am20202110>
- Sneath, J., Lacey, R., & Kennett-Hansel, P. (2009). Coping with a natural disaster: Losses, emotions, and impulsive and compulsive buying. *Marketing Letters*, 20(1), 45–60. <https://doi.org/10.1007/s11002-008-9049-y>
- Taguchi, N. (2018). Description and explanation of pragmatic development: Quantitative, qualitative, and mixed methods research. *System*, 75, 23–32. <https://doi.org/10.1016/j.system.2018.03.010>
- Thoits, P. A. (1995). Stress, coping, and social support processes: Where are we? What next? *Journal of Health and Social Behavior*, 35, 53. Special issue, 53–79. <https://doi.org/10.2307/2626957>
- Unal, M., Yilmaz, A., Yilmaz, H., Tasdemir, G. Y., Uluturk, M., Kemanci, A., Senol, H., Altan, B., Ozen, M., Seyit, M., Oskay, A., & Turkcu, I. (2022). The impact of COVID-19 on social support perception and stress of prehospital care providers. *Australasian Emergency Care*, 25(4), 334–340. <https://doi.org/10.1016/j.auec.2022.04.003>

Wang, C., & Zhao, H. (2020). The Impact of COVID-19 on Anxiety in Chinese University Students. *Frontiers in Psychology, 11*, 1168. <https://doi.org/10.3389/fpsyg.2020.01168>

Wong, K. (2004). Asian-based development journalism and political elections. *Gazette: The International Journal for Communication Studies, 66*(1), 25–40. <https://doi.org/10.1177/0016549204039940>

Xie, X., Zang, Z., & Ponzoo, J. M. (2020). The information impact of network media, the psychological reaction to the COVID-19 pandemic, and online knowledge acquisition: Evidence from Chinese college students. *Journal of Innovation & Knowledge, 5*(4), 297–305. <https://doi.org/10.1016/j.jik.2020.10.005>

Zhong, B. L., Luo, W., Li, H. M., Zhang, Q. Q., Liu, X. G., Li, W. T., & Li, Y. (2020). Knowledge, attitudes, and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: A quick online cross-sectional survey. *International Journal of Biological Sciences, 16*(10), 1745–1752. <https://doi.org/10.7150/ijbs.45221>

**Appendix**  
**Measures of acute stress**

|  | <b>M</b> | <b>SD</b> |
|--|----------|-----------|
| 1 I constantly think about Coronavirus (COVID-19) during the day.                                      | 2.53     | .878      |
| 2 I worry that I or my loved ones might get infected by the virus.                                     | 2.85     | .890      |
| 3 I am nervous when someone I don't know is very close to me.  | 3.02     | .844      |
| 4 I sometimes check myself to make sure I don't have the symptoms of Coronavirus (COVID-19) infection. | 3.16     | .764      |
| 5 Thinking about Coronavirus (COVID-19) keeps me from getting things done during the day.              | 2.21     | .987      |
| 6 I find it hard to relax after I hear news about Coronavirus (COVID-19).                              | 2.21     | .910      |

**Measures of knowledge on COVID-19**

|   | <b>M</b> | <b>SD</b> |
|---|----------|-----------|
| 1 Fever, fatigue, dry cough, and shortness of breath are common symptoms of COVID-19                              | 0.90     | 0.30      |
| 2 Unlike the common cold, stuffy or runny nose and sneezing are less common in persons infected with the COVID-19 | 0.51     | 0.50      |
| 3 Currently, there is no effective cure for every person with COVID-19.   | 0.37     | 0.48      |
| 4 Only those who are elderly, have chronic illnesses, and are obese can develop severe symptoms of this disease   | 0.39     | 0.49      |
| 5 Eating or contacting wild animals would result in the infection by the COVID-19 virus.                          | 0.32     | 0.47      |
| 6 As many as half of those who have COVID-19 are not aware that they are infected.                                | 0.86     | 0.35      |

(Continued)

| <b>(Continued)</b>  |          |           |
|---|----------|-----------|
|   | <b>M</b> | <b>SD</b> |
| 7 The COVID-19 can spread via respiratory droplets that can be on any person, surface or object you touch | 0.94     | 0.24      |
| 8 The COVID-19 can spread via respiratory droplets that are in the air when people talk                   | 0.91     | 0.29      |
| 9 The COVID-19 can be transmitted when a person comes in physical contact with another person             | 0.71     | 0.46      |
| 10 The most common way of getting COVID-19 is by touching your face                                       | 0.56     | 0.50      |

**Measures of changes and onset in consumer behavior**

|  | <b>M</b> | <b>SD</b> |
|--|----------|-----------|
| 1 Shop groceries online  | 0.38     | 0.49      |
| 2 Shop groceries at store  | 0.19     | 0.40      |
| 3 Buy larger quantities of products in a fewer trip to store           | 0.50     | 0.50      |
| 4 Use food delivery service  | 0.37     | 0.48      |
| 5 Exercise at home   | 0.39     | 0.49      |
| 6 Watch TV at home   | 0.31     | 0.47      |
| 7 Use social media to connect with friends (Facebook, Instagram, etc.) | 0.23     | 0.42      |
| 8 Engage in charity activities   | 0.20     | 0.40      |
| 9 Buy insurance that covers Coronavirus (COVID-19)                     | 0.36     | 0.48      |
| 10 Take online course to learn new skill or update knowledge           | 0.42     | 0.49      |
| 11 Cook at home  | 0.47     | 0.50      |
| 12 Take on new hobbies or recreational activities at home              | 0.54     | 0.50      |
| 13 Drink alcoholic beverage at home                                    | 0.14     | 0.35      |
| 14 Buy pet products or services  | 0.12     | 0.33      |
| 15 Save money  | 0.51     | 0.50      |
| 16 Wear a mask when you go out   | 0.71     | 0.46      |
| 17 Use alcohol gel to clean your hands                                 | 0.73     | 0.45      |
| 18 Wash your hands   | 0.62     | 0.49      |
| 19 Avoid touching your face  | 0.54     | 0.50      |
| 20 Clean and disinfect your home                                       | 0.56     | 0.50      |

Note: Activities 16 through 20 are used for the index of new consumer behaviors.



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